

ZIPPER WITH A SMOOTH PULL FUNCTION

Field of the invention

The present invention relates to a zipper with a smooth pull function, especially to a zipper body being made of a metal or plastic material used on a plastic-steel zipper chain for pulling the zipper easily and smoothly.

Background of the invention

Referring to FIG. 1, a zipper of the prior art at least includes a zipper body 10a and a puller 12a pivoted on the zipper body 10a. So as to use the puller 12a to pull the zipper body 10a along a zipper chain 20a for controlling the zipper chain 20a in an open state or a close state.

Moreover, the zipper of the prior art further comprises a flexible element 12a disposed on the zipper body 10a, and having a hook portion 13a inserting in the zipper body for retaining the puller 11a on the zipper body 10a.

However, the zipper of the prior art is used on the jeans. The jeans will result a plurality of creases thereon, when the jeans was washed. It will lead to a zipper chain of the jeans in a non-level state. And the zipper chain 20a of the prior art is made of a plastic-steel zipper chain, so that the user pulls the zipper along the zipper chain 20a difficultly, and it will generate more serious question due to above.

With the employment of unique considerations and application of theories, and based on several years experience in specialized production of all flexible assembly systems and mechanisms, so that the

inventor has come up with an innovative zipper with a smooth puller function.

Summary of the invention

The primary object of the present invention is to provide a zipper
5 with a smooth pull function. The zipper has a level portion for leveling
a non-level zipper chain.

Another object of the present invention is to provide a zipper with a
smooth pull function. The zipper has a smooth portion smoothly used on
the zipper chain that is made of plastic-steel zipper chain.

10 In order to achieve the above objects, the present invention provides a zipper with a smooth pull function comprising a zipper body and a puller. Wherein the zipper body includes a top plate having a leveling portion formed at one side thereof, a bottom plate having a smooth portion formed at one side thereof and two slide grooves formed
15 between the top plate and the bottom, and the leveling portion defined a concave groove formed at an inside thereof and the smooth portion defined a corner formed at outside thereof. And the puller is connected with the top plate of the zipper body.

Brief description of drawing

20 The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing, in which:

Fig. 1 is a perspective view of a zipper of the prior art invention;

Fig. 2 is a perspective view of according to a first embodiment of

the present invention;

Fig. 3 is an exploded view of according to a first embodiment of the

present invention;

Fig. 4 is a side view of according to a first embodiment of the

5 present invention;

Fig. 5 is a cross-section view of according to a first embodiment of

the present invention;

Fig. 6 is a perspective view of when puller is pulled off according to

a first embodiment of the present invention;

10 Fig. 7 is a perspective view of according to a second embodiment
of the present invention; and

Fig. 8 is an exploded view of according to a second embodiment of
the present invention.

Detailed description of the preferred embodiment

15 Referring to FIGS. 2 to 5, the present invention provides a zipper
with a smooth pull function, comprising a zipper body 10, a puller 20
and a flexible element 30. Wherein the zipper body 10 includes a top
plate 11, a bottom plate 12 disposed on the top plate 11, a connected
portion 13 integrally disposed between the top plate 11 and the bottom
20 plate 12, two slide grooves 14 formed between the top plate 11 and the
bottom plate 12 and two sides of the connected portion 13 for receiving
a zipper chain 41, two pivot seats 15 each having a pivot hole 16
disposed on a top surface of the top plate 11, two retaining elements 17
disposed near one side of the top plate 11 and a through hole 18 formed

near another side of the top plate 11.

Besides, the puller 20 has a rectangular shape, and including a pivot portion 21 formed at one side thereof and a contacted portion 22 projected from the pivot portion 21. Wherein the pivot portion 21 is 5 pivoted in the two pivot holes 16 for pivoting the puller 20 on the top surface of the zipper body 10.

Moreover, the flexible element 30 is made of a flexible element, and having a fixed portion 31 formed at one side thereof and a hook portion 32 formed at another side thereof. The flexible element 30 is receiving 10 between the two pivot seats 15 of the zipper body 10. Wherein the fixed portion 31 is retained by the two retaining elements 17, and the hook portion 32 is inserted into the through hole 18 of the zipper body 10 for retaining the hook portion 32 in the zipper chain 41.

Furthermore, the top plate 11 has a leveling portion 111 formed at 15 one side thereof and two sides thereof, a bottom plate 12 having a smooth portion 121 formed at one side thereof and two sides thereof. The leveling portion 111 and the smooth portion 121 respectively has a guiding surface 112 and a guiding surface 122 with an inclined or curviform surface. The leveling portion 121 has a concave groove 113 20 with a V-shaped formed at a front and an inside thereof. The smooth portion 121 has a corner 123 with an arc shape.

Referring to FIG. 6, the zipper body 10 is assembled with the plastic-steel zipper chain 40 by the two slide grooves. Using the puller 20 can control the plastic-steel zipper chain 40 in an open state or a 25 close state. When the puller 20 will be pulled along the zipper chain 41,

the flexible element 30 is pulled by the contacted portion 22 of the puller 20 for separating the hook portion 32 from the zipper chain 41 of the plastic-steel zipper chain 40. So the puller 20 is slid on the zipper chain 41 smoothly for controlling the zipper chain 41 in the open state or the 5 close state. When the puller 20 is released from the user, the hook portion 32 will be broken away from the puller 20. So the hook portion 32 is returned to an original position (the hook portion 32 is retained in the zipper chain 41), then the zipper is in the close state.

Furthermore, when the zipper body 10 is pulled by the puller 20 10 along the zipper chain 41, the concave groove 113 and the corner 123 will avoid to contact the zipper chain 41, and the leveling portion 111 and the smooth portion will contact the zipper chain 41 first for getting the smooth pull function.

Referring to FIGS. 7 to 8, a second embodiment of the present 15 invention provides a zipper body 10 including a plate 11 having a leveling portion 111' formed at one side thereof and two sides thereof, a bottom plate 12 having a smooth portion 121' formed at one side thereof and two sides thereof. The leveling portion 111' and the smooth portion 20 121' respectively has a guiding surface 112' and a guiding surface 122' with an inclined or curviform surface. The leveling portion 121' has a concave groove 113' with a V-shaped formed at a front and an inside thereof. The smooth portion 121' has a corner 123' with an arc shape.

Although the present invention has been described with reference 25 to the preferred embodiment thereof, it will be understood that the invention is not limited to the details thereof. Various substitutions and

modification have suggested in the foregoing description, and other will occur to those of ordinary skill in the art. Therefore, all such substitutions and modifications are intended to be embraced within the scope of the invention as defined in the appended claims.